User Manual

ENGLISH

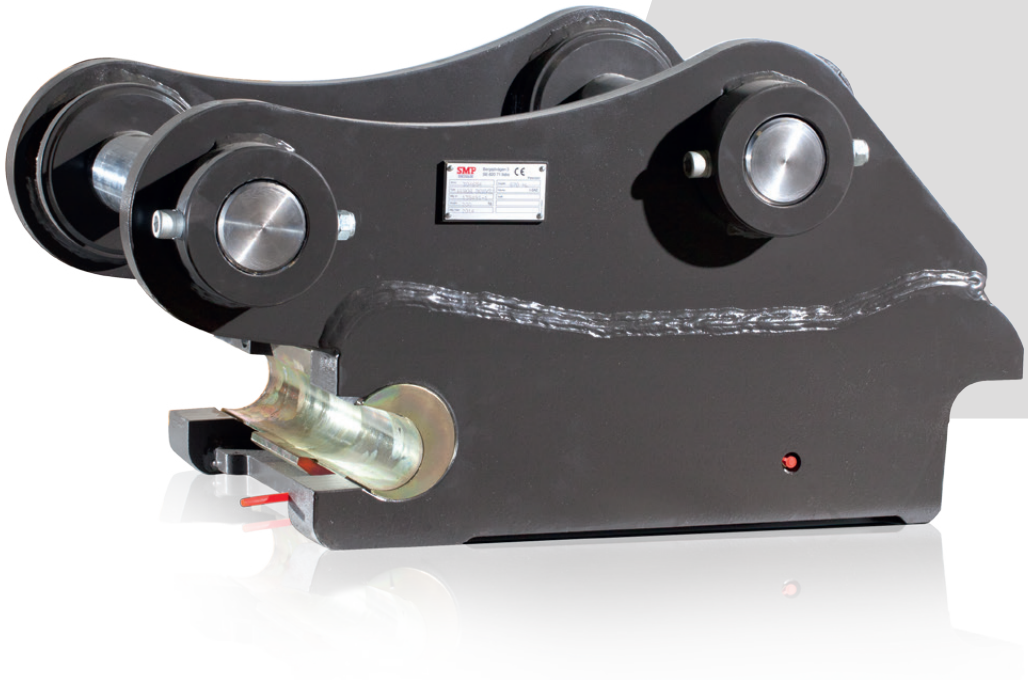
SMP Parts AB

HardLock

S45, S50, S60, S70, S80

SMP Parts AB

HARD LOCK



Congratulations on your SMP purchase!

Carefully study this user manual before using the product.
The manual explains the safety aspects for using this product and how to get the most out if it to maximize the products life span.
Take care of your SMP product and it will take care of you!

Welcome as our customer to SMP Parts AB.
Do not hesitate to contact us for further information.
www.smpparts.com

Contents

Introduction

About This Manual 4
General 4
Declaration Of Conformity 5
Identification Plate 5

Safety

Safety and Warnings 6

Technical Specifications

Dimensions 8

Installation

Installation 9
Demounting an Existing Quick Coupler 9
Mounting the HardLock Quick Coupler 10
Connecting the Hydraulics 11
Pre Delivery Inspection 12

Operation

Attachment 13
Detachment 16
Troubleshooting 18

Service and Maintenance

Service and Maintenance 19
Lubrication Chart 20

Spare Parts

Spare Parts List 21

Introduction

About This Manual

This user manual is intended to be used together with the SMP HardLock quick coupler during installation, operation and regular maintenance.

This manual is a guide of how to use and maintain the quick coupler in the correct way.
SMP reserves the right to change the contents of this manual at any time and without prior notice. This user manual can be ordered at SMP Parts.

The operator of the equipment must carefully study and make sure to fully understand this manual before using the equipment. The safety information given in this manual is only covering the SMP HardLock fastening equipment independent of the carrier machine and tools.

This user manual is an original instruction according to the machinery directive.

General

The SMP HardLock is a quick coupler used for attachment of buckets and tools to a carrier such as an excavator or similar. From here we will use the word excavator.
The quick coupler is hydraulicaly controlled meaning that changing of buckets and tools is controlled with the excavator´s hydraulic and control system by the operator.

The quick coupler is equipped with a hook, intended to use for lifting with slings, lifting chains or similar. The maximum allowed lifting weight is shown on the hook. The maximum allowed lifting weight of the carrier machine must never be exceeded. The lifting hook must not be used if the locking mechanism is not working properly or damaged.

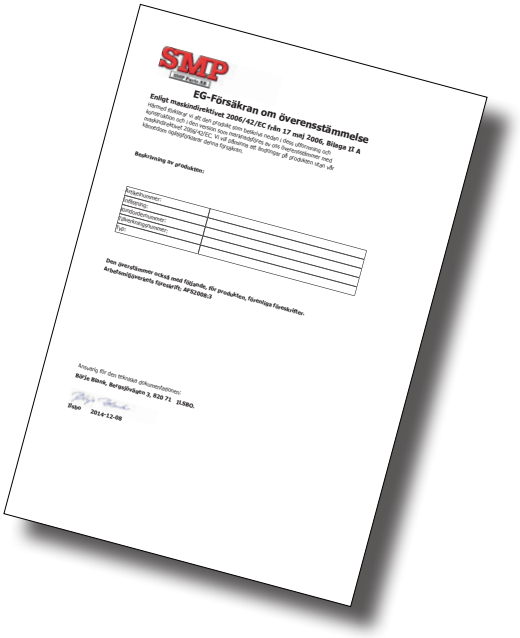
To prevent injury of a person or damage to equipment, read and note all warning signs and symbols shown on the quick coupler and in this manual before use.

Before operation, check that no unauthorized persons are within the working area of the excavator.

Before operation, pressurize the quick coupler locking function to check and ensure that the bucket or tool is perfectly secured.

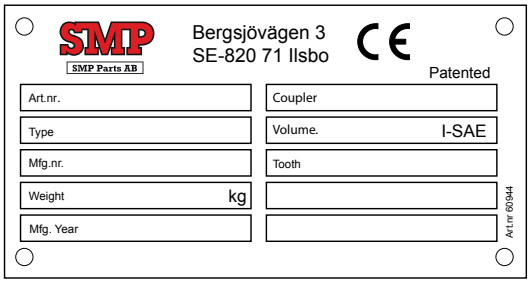
Declaration Of Conformity

SMP Parts develop and manfacture all products in accordance with the european legislations and the machinery directive 2006/42/EG. Together with the products delivered there is also a CE certificate that guarantees that the equipment is manufactured according to the legislations.


EG-Försäkran om överensstämmelse

Identification Plate

The identification plate gives information about model designation, serial number, manufacturing year. There is also a CE-logotype on the plate indicating that the product fulfill the machinery directive.



Safety

Safety and Warnings

This chapter describes safety related information that needs to be taken into consideration before, during and after using the equipment.

DANGER, WARNING, CAUTION and Note statements are used throughout this manual to emphasize important and critical information. You must read these statements to help ensure safety and to prevent damage to the product. The statements are defined below.

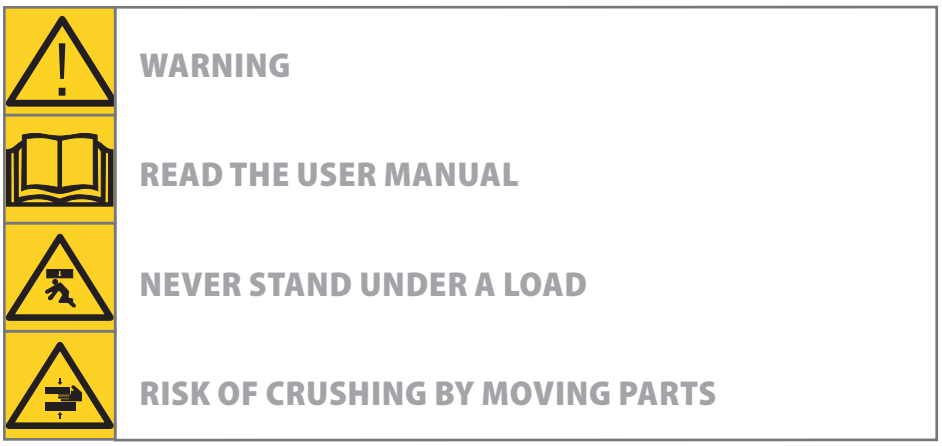
DANGER indicates an imminiently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

Note: A note statement is used to notify people of installation, operation or maintenance information that is important, but not hazard-related.

General Warning Signs on Machinery Equipment



⚠ DANGER!

Never stand under a load! Always keep attention to the machines working area. Unauthorized persons are not allowed to enter the working area of the machine during operation. Always ensure that the machine is completely stopped during maintenance and repairs.

⚠ WARNING!

Do not install the quick coupler before you have read and understood the instructions given in the user manual.

⚠ WARNING!

Incorrect installation can affect the safety. If there are any uncertainties, contact your local dealer or SMP Parts.

⚠ WARNING!

Make sure that the hydraulic system does not contain any pressure before maintenance or repair work. The hydraulic oil is under high pressure and can penetrate your skin causing serious injury.

⚠ WARNING!

Never use your hands when looking for a leakage. The hydraulic oil is under high pressure and can penetrate your skin causing serious injury.

⚠ WARNING!

When the quick coupler is being installed, the load tipping limit must be checked to prevent and minimize the risk of injury of a person.

⚠ WARNING!

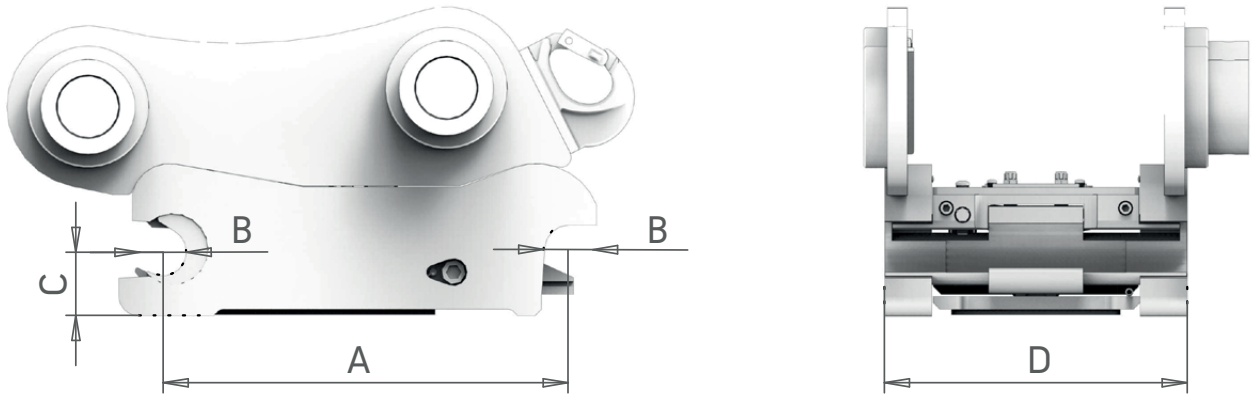
Never use equipment attached to the quick coupler if the locking mechanism is not in locked position.

⚠ WARNING!

Use protective clothing when working on the equipment.

Technical Specifications

Dimensions



Quick coupler type		S45	S50	S60	S70	S80
Length (A)	(mm)	429,8 ±0,2	429,8 ±0,2	479,8 ±0,2	599,8 ±0,2	669,8 ±0,2
Shaft dimension	(mm)	ø 45	ø 50	ø 60	ø 70	ø 80
Height (C)	(mm)	Max 65	Max 65	Max 80	Max 100	Max 115
Width (D)	(mm)	288 ±1	268 ±1	338 ±1	448 ±1	588 ±1
Max. Hyd. pressure	(bar)	350	350	350	350	350
Weight	(t)	5-12	5-13	12-18	17-25	25-40

Installation

Before carrying out any installation work, place the machine and the equipment to be installed on a clean flat surface without obstacles, with no inclination since that could result in problems during installation.

⚠ WARNING!

Do not install the quick coupler before you have read and understood the instructions given in the user manual.

⚠ WARNING!

Incorrect installation can affect the safety. If there are any uncertainties, contact your local dealer or SMP Parts.

Demounting an Existing Quick Coupler

On the excavator quick coupler, disconnect the hydraulics and fit plugs. Bring out the shafts and remove the quick coupler. Use the shafts delivered with the quick coupler during the installation. For some machines the shafts are not supplied with the quick coupler, the original shafts shall in those cases be used.

⚠ WARNING!

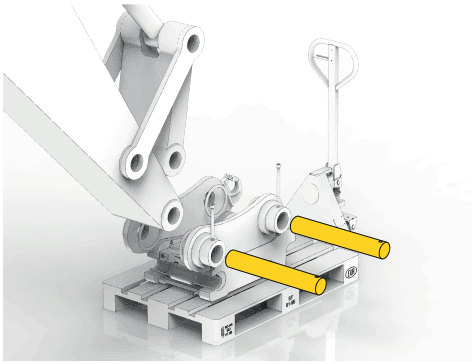
Make sure that the hydraulic system does not contain any pressure before demounting the pressure hoses to the locking function. Hydraulic oil under pressure can penetrate your skin and cause serious injury. Fit plugs onto the hoses to be able to operate the excavator arm during the installation.

Installation

Mounting the HardLock Quick Coupler

⚠ WARNING!

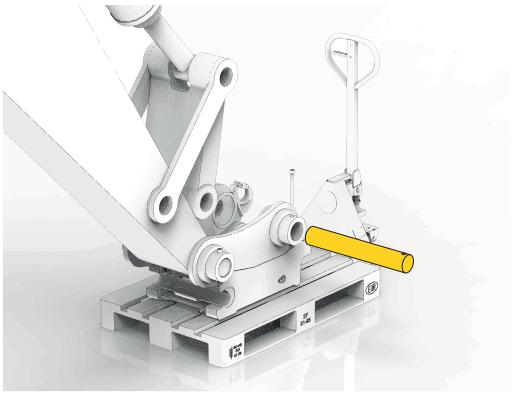
Take extra care when connecting the quick coupler to the excavator since there is a risk of crushing hands and fingers.

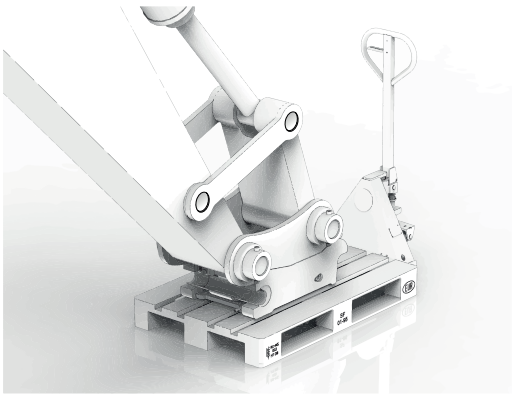


Tip!

To simplify the installation, place the quick coupler on a pallet and use a pallet jack to adjust into correct position.

1. Fit the dust protection o-rings.
2. Operate the dipper arm to place it by the quick coupler. Use a pallet jack to bring the quick coupler into position. The shaft holes in the quick coupler should now be in line with the holes in the excavator arm.
3. Visually inspect the axial gap between the dipper arm and quick coupler. If the gap is greater than 3 mm, fit shims.
4. Add oil to the bushings and shaft, fit the shaft and bring it in completely by gently tapping it with a soft sledge hammer.
5. Operate the tipping link and align it with the holes on the quick coupler. Visually inspect the axial gap between the tipping link and quick coupler. If the gap is greater than 3 mm, fit shims.
6. Lock the shafts with the locking pins included in the installation kit.





Connecting the Hydraulics

The type, size and length of hydraulic hoses and couplings can differ depending on type of excavator. Therefore it is sometimes neccesary to make new hoses locally. Ensure that the hydraulic hoses get the correct length to prevent damage which can be caused by stretching or crushing.

Make sure that the hydraulic hoses and nipples are fitted and tightened according to the supplier recommendations.
The size of hydraulic ports is 1/4" BSP for all models.

⚠ WARNING!

Make sure that the hydraulic system does not contain any pressure before demounting the plugs on the hoses. Hydraulic oil under pressure can penetrate your skin and cause serious injury.

Locking and opening pressures:

HardLock type S45 - S80	Recommended	
Locking pressure	Min 150 bar	Max 350 bar
Opening pressure		Max 350 bar

NOTE!

All SMP quick couplers are equipped with pilot controlled check valve, type: 4CK30.

Installation

Pre Delivery Inspection

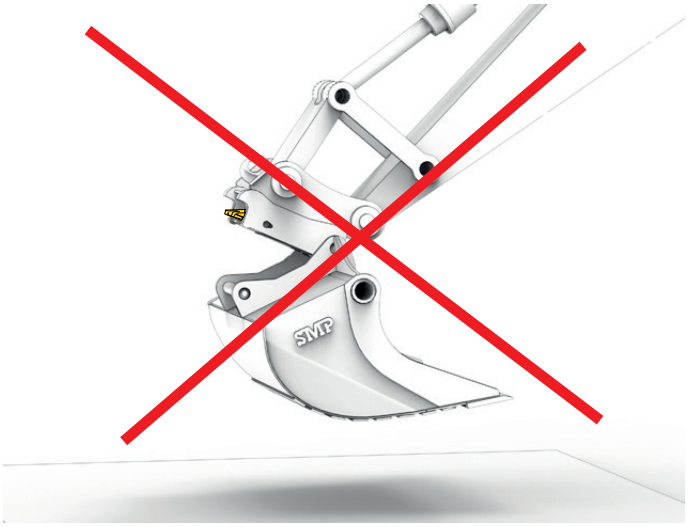
After the installation is completed:

1. Check the functionality.
2. Check for leakages.
3. Attach a bucket or a tool and operate the bucket function to its end positions.
4. Check and make sure that the bucket or tool is perfectly secured and that the hoses are not stretched or crushed.
5. Grease according to lubrication chart.
6. Clean the equipment before delivery to end customer.
7. Fill up local after sales contact information on the back cover of this manual.

Attachment

⚠ WARNING!

It can in some situations be possible to connect a bucket or tool and "grab" it with the excenter locking shaft. This is not allowed at anytime! Never lift a bucket/tool with the quick coupler not completely locked.



⚠ WARNING!

Before attaching, make sure that both the grid on the bucket or tool and quick coupler is clean and free from dirt that could affect the fastening.

⚠ DANGER!

Never stand under a load! Always pay attention to the machines working area. Unauthorized persons are not allowed to enter the working are of the machine during operation. Always ensure that the machine is completely stopped during maintenance and repairs. **Risk zone: three meters!**

⚠ WARNING!

The lifting hook must not be used if the locking mechanism is not working properly or damaged.

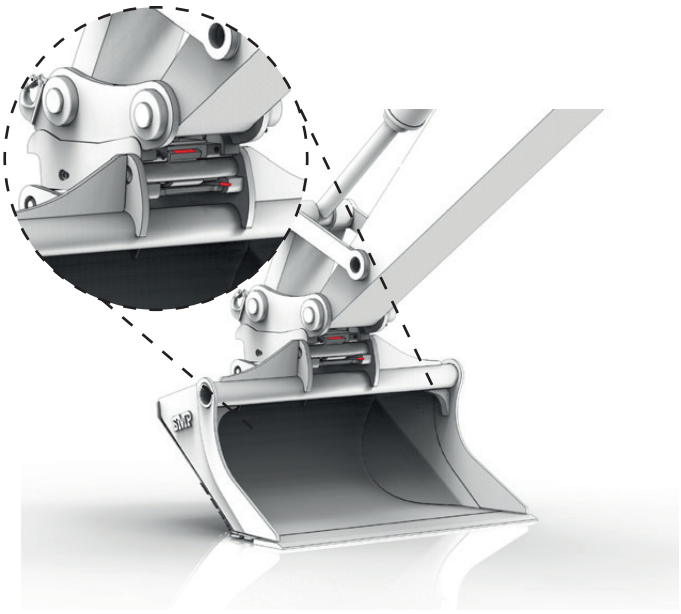
⚠ WARNING!

The maximum allowed lifting weight of the carrier machine must never be exceeded.

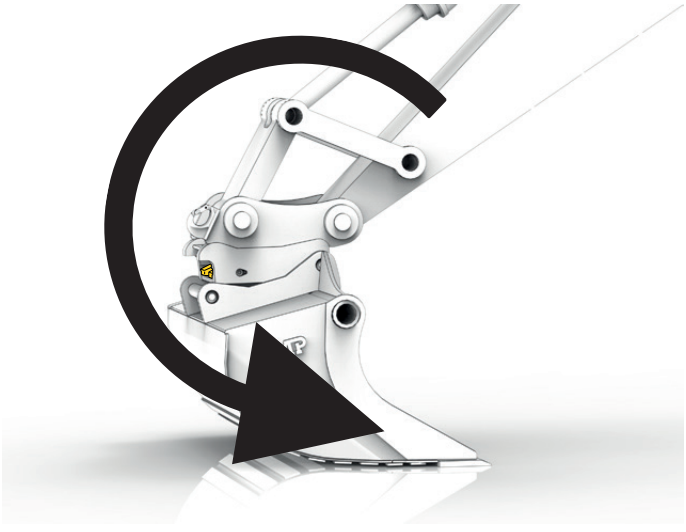
Operation

TIP!
The attachment will be easier if the bucket/tool and the machine is aligned and placed on a flat surface.

1. Check for both indicators to be visible, indicating that the quick coupler is in open position.



2. Position the quick coupler onto the grid.

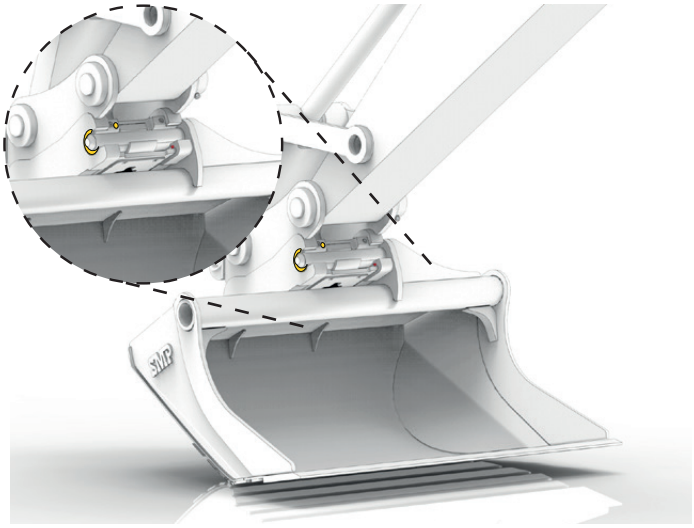


3. Operate the tilting function to fit the quick coupler to the grid.

4. Operate the locking function to fasten and secure the bucket/tool.

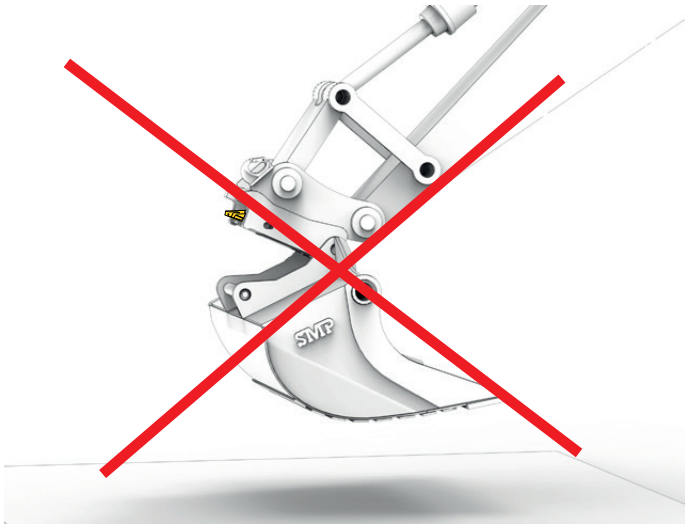
5. The indicator indicates that the quick coupler is in locked position. Both indicators should be "hidden".

6. Carefully check that the bucket/tool is fastened by carrying out a bend test.



Operation

Detachment

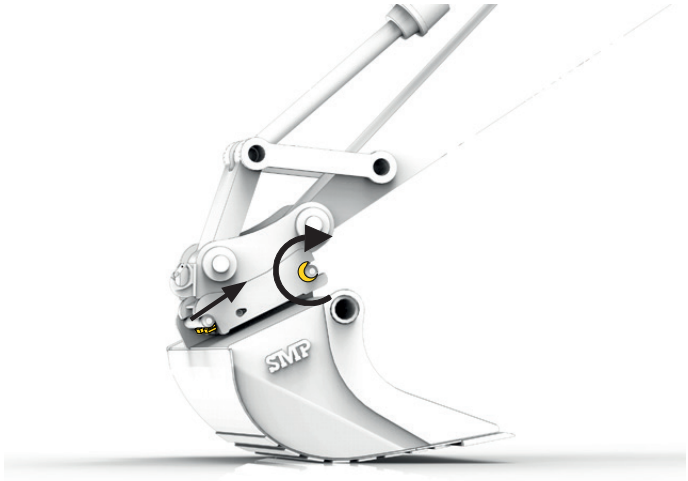


⚠ WARNING!

Never release the locking mechanism when the bucket or tool is in a position where it can fall off the quick coupler.

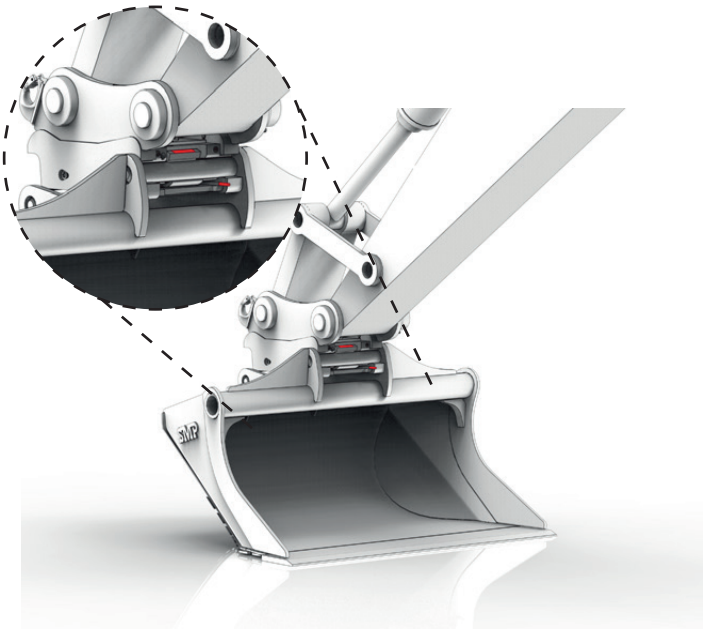
⚠ DANGER!

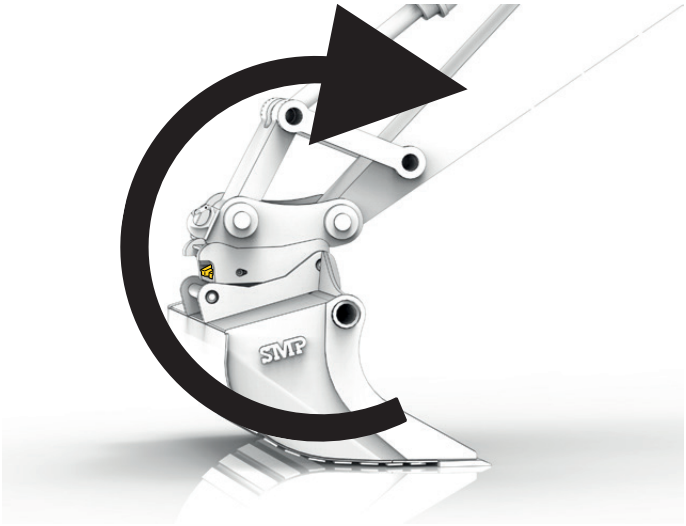
Never stand under a load! Always pay attention to the machines working area. Unauthorized persons are not allowed to enter the working are of the machine during operation. Always ensure that the machine is completely stopped during maintenance and repairs.



1. Place the bucket onto the ground before disconnecting
2. Unlock the quick coupler by operating the locking function.

3. Carefully detach the bucket/tool.





Operation

Troubleshooting

Insufficient functionality can depend on a number of reasons. This list explain some of the possible faults to check for.

- Check for blocking material such as stones or similar that can block the mechanical functions of the quick mount.
- Check for mechanical damage.
- Check the functionality of the excatavor.
- Check for leakage

Make a judgement if the fault can be repaired by yourself or if a technician need to repair the fault.

⚠ WARNING!

Do not carry out any repairs if you do not have the expertise or knowledge in how to make the repair.

⚠ CAUTION!

Always use protective clothing when working on the equipment.

⚠ WARNING!

The machine must always be turned off during service and maintenance.

Service and Maintenance

To get the most out of the products and to ensure full product life time, regular service and maintenance is of high importance.

⚠ CAUTION!

Always use protective clothing when working on the equipment.

⚠ WARNING!

The machine must always be turned off during service and maintenance.

Daily Maintenance

- Operate the quick coupler to check its functionality.
- Visually check shaft locking pins and nuts.
- Check for leakage in the hydraulic system.
- Check for cracks and damage.
- Check that the quick coupler is correctly fastened both excavator and bucket.
- Clean the quick coupler from dirt.
- Lubricate according to lubrication chart.
- Check for axial play, shim if needed.
- Check the locking mechanism at the lifting hook.

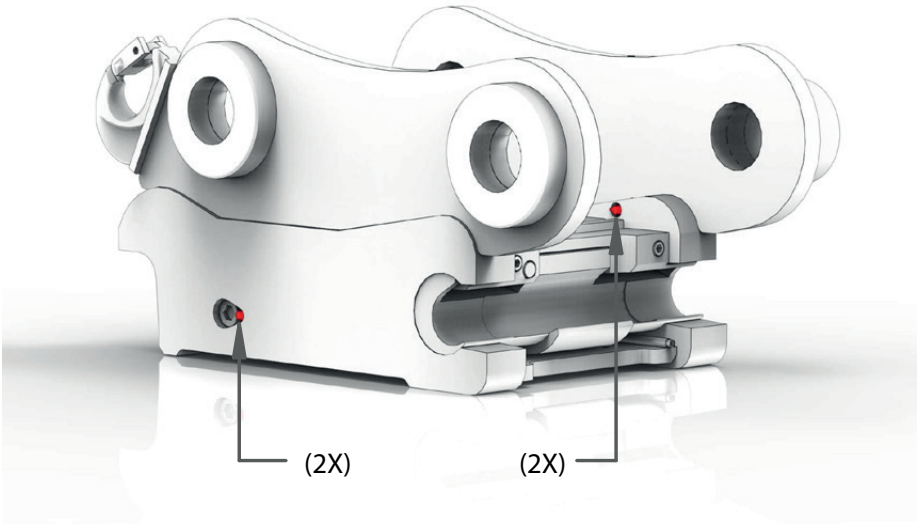
Weekly Maintenance

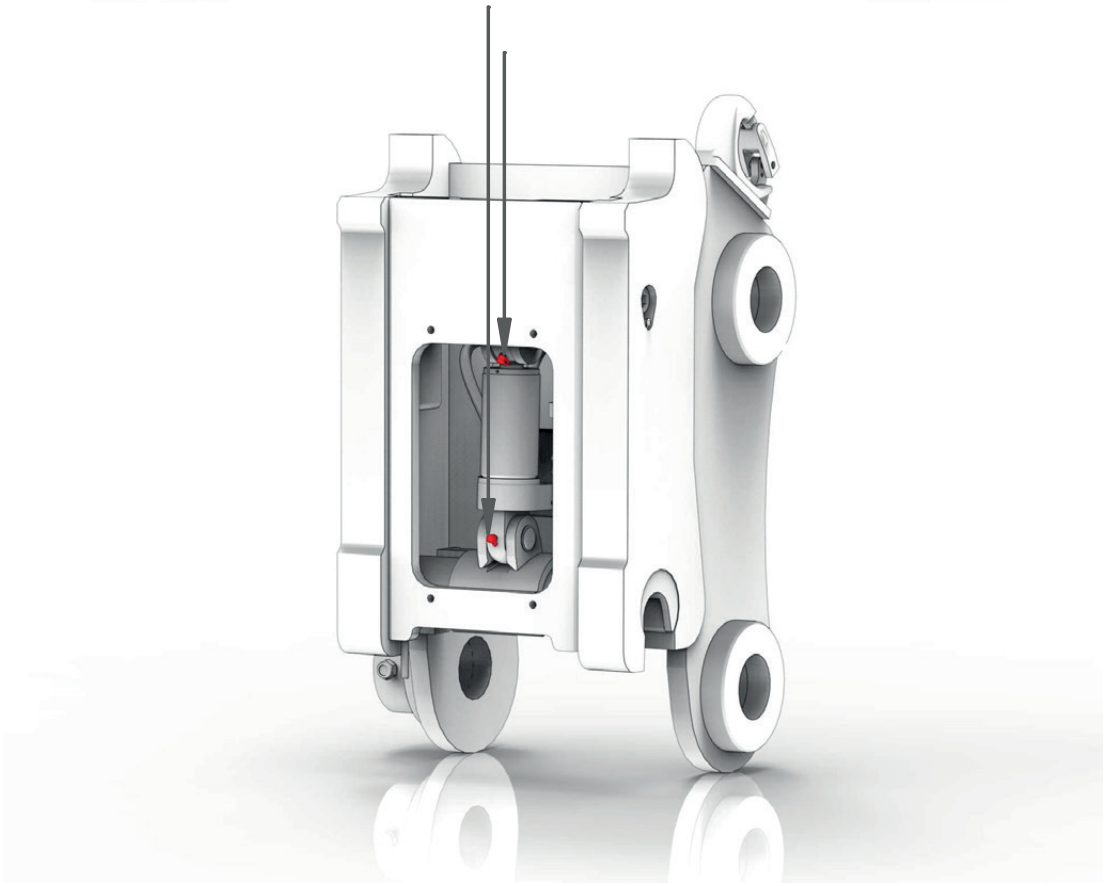
- Check fastenings on shafts, tighten locking screws and nuts.

Service and Maintenance

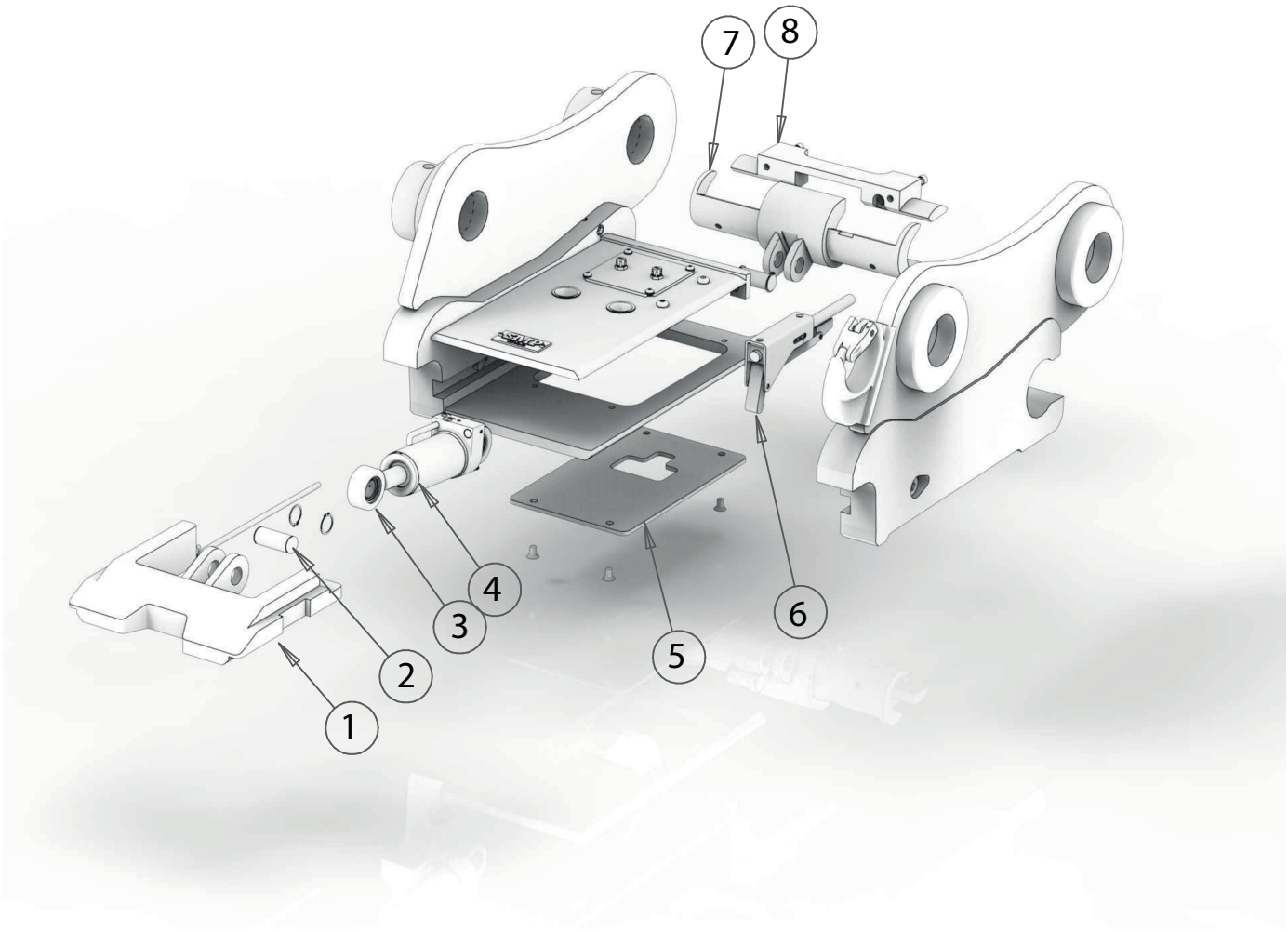
Lubrication Chart

Lubricate the quick coupler with grease at least once per week or after 40 working hours.





Spare Parts List



Model	S45	S50	S60	S70	S80	
Pos	**Part number**					**Description**
1	208669	208669	207810	207614	207894	Locking wedge
2	208676	208676	207685	207685	207685	Shaft
3	76134	67134	67098	67098	67098	Hydr.cyl
4	67185	67185	67135	67135	67135	Seal kit
5	–	–	–	208407	208407	Protection plate
6	208968	208968	208964	208964	208964	Excenter lock
7	208665	208662	207807	207713	207891	Excenter
8	208668	208667	207797	207618	207893	Locking block

Notes

About SMP Parts

SMP is a leading designer and manufacturer of high quality equipment and tools for excavators and backhoe loaders. Our company prides itself on producing products and solutions that are of the highest quality and safety standards. We are a very customer focused company and by adapting our products, we can modify the solution for each customer's specific challenge or task at hand.

Since 1980 SMP Parts has been developing and producing equipment for mini excavators, tractor loaders and wheel drive/track drive excavators. Some of the products we offer are quick couplers, excavator buckets, grading buckets and a range of other accessories.

SMP's own patented quick hitch was launched in 1983 and in 1985 the Swingotilt® tiltrotator was developed.

In 1987 the AREMA GROUP AB took over the company and in 1989 SMP began selling to the Norwegian market.

In 1992 all manufacturing was moved to the present site in Ilsbo, Sweden and a year later a sales office in Germany opened.

SMP Parts have over 100 employees, most of which work at the factory in Ilsbo, Sweden but we also have employees in Norway and Germany.

SMP Parts operates in Sweden, Norway, Finland, Denmark, Germany, England, Spain and the Benelux countries, with a number of dealers in each country. All development and manufacturing is carried out in the main headquarters and factory in Sweden. To meet the requirements of quality, function and finish, SMP has over the years invested in a modern and efficient fleet.

Download a digital copy of this manual

Headquarters / factory

SMP Parts AB
Bergsjövägen 3, SE-820 71 Ilsbo, Sweden
Tel: +46 650 356 50, Fax: +46 650 35660
info@smpparts.com
www.smpparts.com

HardLock User Manual 67186-EN REV2015-04